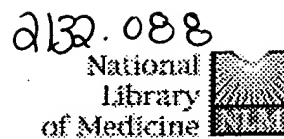




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## Possible neuroprotective role of clusterin in Alzheimer's disease: a quantitative immunocytochemical study.

Giannakopoulos P, Kovari E, French LE, Viard I, Hof PR, Bouras C.

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Clusterin is a secreted glycoprotein that is expressed in response to tissue injury both in peripheral organs and in the brain. Recent studies have shown a substantial increase in clusterin mRNA in pyramidal neurons of the hippocampus and the entorhinal cortex in Alzheimer's disease (AD), with clusterin immunoreactivity occurring in neuropil threads, neurofibrillary tangles (NFT), and senile plaques. To elucidate further the role of this protein in the degenerative process, a quantitative study of its distribution in the cerebral cortex of non-demented and AD patients, all older than 85 years of age, was performed using immunocytochemistry. Using a stereological approach, we found that in cortical areas affected in AD, such as the entorhinal, inferior temporal and superior frontal cortices, the percentage of NFT-free neurons displaying clusterin immunoreactivity was significantly higher than that in non-demented cases. No such increase in the density of clusterin-immunoreactive neurons was seen in cortical areas that were less affected in the disease process. Furthermore, clusterin immunoreactivity was rarely observed in NFT-containing neurons. In conjunction with previous observations in peripheral tissues, these data suggest that clusterin may have a neuroprotective role, and that in AD, low cellular expression of this protein may be associated with neuronal degeneration and death.

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